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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/932,977	08/21/2001	Shing-Kuo Pan	032347.0003	6827

25227 7590 06/05/2003

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EXAMINER

KINKEAD, ARNOLD M

ART UNIT PAPER NUMBER

2817

DATE MAILED: 06/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/932,977

Applicant(s)

PAN ET AL.

Examiner

Arnold M Kinhead

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-38 is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-12 and 17 is/are rejected.
- 7) ☒ Claim(s) 7, 8 and 13-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

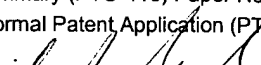
Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: 

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DETAILED ACTION

Drawings

1. Color photographs and color drawings are acceptable only for examination purposes unless a petition filed under 37 CFR 1.84(a)(2) is granted permitting their use as acceptable drawings. In the event that applicant wishes to use the drawings currently on file as acceptable drawings, a petition must be filed for acceptance of the color photographs or color drawings as acceptable drawings. Any such petition must be accompanied by the appropriate fee set forth in 37 CFR 1.17(h), three sets of color drawings or color photographs, as appropriate, and an amendment to the first paragraph of the brief description of the drawings section of the specification which states:

The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the U.S. Patent and Trademark Office upon request and payment of the necessary fee.

Color photographs will be accepted if the conditions for accepting color drawings have been satisfied.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time

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any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1,2,3,4,5,6,9,10,11,12, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani (US 6,239,663, new cite)

The reference by Mizutani discloses a millimeter/submillimeter wave generator(see figures 13-15) showing output peaks in the frequency range as desired, i.e., with one or more frequencies between about 100GHz-400GHz. It is to be noted that the continuous spectrum is inherent in that only the harmonic peaks are shown in figure 14, however, there is a spectrum that overlaps the range(60-400GHz) as noted above (see figure 1, actual oscillation spectrum and figure 14). A transmission structure including the micro-striplines are shown(3-5,7-9). Note in col. 6, lines 38-41, the oscillator is packaged on a substrate and the size is small compared to the prior art. This allows for easier package integration and thus portability is enhanced.

The reference by Mizutani does not describe the noise spectrum associated with the output. The use of multipliers and harmonic mixers are not disclosed for converting a first noise band to a second noise band. With regards the noise, this noise spectrum, albeit not shown in the reference, is part of the actual oscillation spectrum, which includes the harmonics and undesired frequencies. Also, the use of multipliers or harmonic mixers are conventional frequency scaling devices that are implemented in frequency generators to scale a particular band of frequency up or down as desired to a second band of operation before output. Official notice is taken with regards this scaling. The reference does not show a range in between 0.1 to about 60GHz for a first band however, this is a

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function of the particular oscillator design and is well within the level of skill for one of ordinary skill in the art to design the oscillator described above to meet. Lastly, the output of the oscillator will be sent to an output port/terminal(213) and thus the second band would be sent to that terminal and thus to a destination(claim 17).

In light of the above it would have been obvious for one of ordinary skill in the art to have recognized that the high frequency generator of Mizutani could be modified to include a multiplier or harmonic mixer so as to scale the output spectrum in any direction up/or down as desired to achieve a second band sent to the output terminal, this allows for a scaled frequency control. The noise spectrum would be part of the actual oscillation spectrum, and figure 1 suggests this, albeit, about a particular harmonic. Choosing a particular band of operation is part of the design criteria for building such high frequency generators and without any critical results noted in the disclosure for the ranges recited, this would be well within the level of skill for one of ordinary skill in the art.

Allowable Subject Matter

5. Claims 18-38 are allowed.

The examiner could not find fair suggestion in the prior art for adjusting the power of the source to a designated level and this level being the max safe level for the multiplier(see claims 18 and 29). Also, the noise generator as claimed in claim 35 with noise temperature greater than 2000K with one or more frequency bands between 110GHz-1.2THz with transmission structure was not suggested in the prior art.

Claims 7,8, 13-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The examiner could not find fair suggestion for a spectrometer using such a device(claims 6,7) nor adjusting of the power level prior to conversion step(claim 13).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnold M Kinhead whose telephone number is 703-305-3486. The examiner can normally be reached on Mon-Fri, 8:30 am -5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on 703-308-4909. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Arnold M Kinhead
Primary Examiner
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Arnold Kinhead
May 30, 2003